

2004 Federal Holidays

New Year's Day...

◊ Thursday, January 1

Martin Luther King's Birthday...

◊ Monday, January 19

Washington's Birthday...

◊ Monday, February 16

Memorial Day...

◊ Monday, May 31

Independence Day...

◊ Monday, July 5

Labor Day...

◊ Monday, September 6

Columbus Day...

◊ Monday, October 11

Veterans Day...

◊ Thursday, November 11

Thanksgiving Day...

◊ Thursday, November 25

Christmas Day...

◊ Friday, December 24

New Year's Day (2005)...

◊ Friday, December 31

International Argo Project Reaches Milestone

A landmark achievement in international cooperation and implementation of a global ocean observing system was realized this past December with the 1,000th Argo float placed in operation. The Argo project has a goal of placing 3,000 profiling floats throughout the world's oceans by 2006.

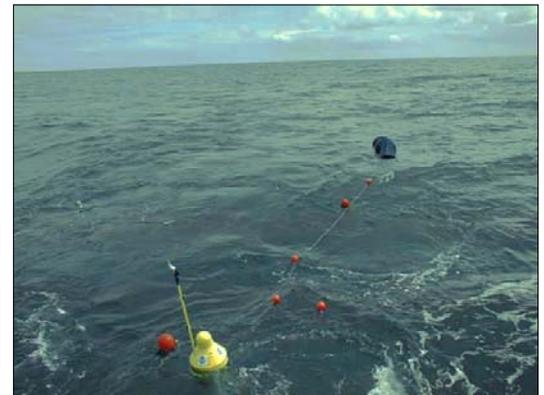
Deployment of the floats has been ongoing since 2000. NOAA is one of the chief participants in implementing the ocean-sensing Argo array. Argo floats collect and distribute data on weather and ocean phenomena.

"The global array of 3,000 Argo floats is a key element of our global ocean observing system. By achieving one-third of that array, we've reached an important milestone," said retired Navy Vice Admiral Conrad C. Lautenbacher, Undersecretary of Commerce for Oceans and Atmosphere and NOAA administrator. "With 1,000 instruments now in operation, we are beginning to get a better synoptic picture, or snapshot, of what is happening beneath the surface of the world's oceans."

The Argo array is part of the Global Climate Observing System/Global Ocean Observing System (GCOS/GOOS) housed at AOML within the Physical Oceanography Division. It is composed of orbiting, sea-based, and land-based environmental sensing devices.

Argo profiling floats are uniquely equipped autonomous instruments. A mechanism housed within the instrument affects its buoyancy, causing it to sink to more than 6,000 feet below the surface (more than a mile), at which depth it drifts passively for 10 days. The buoyancy mechanism then triggers it to rise, measuring temperature and salinity along the way, and at the surface an antenna sends the information to satellites for relay to shore, along with the float's position as determined by the satellite. After transmitting the data, the unit sinks again to repeat the cycle. Additionally, the difference between the float's present reporting position and its position 10 days earlier provides an estimate of the ocean currents at depth.

The floats are built to continue this process for approximately four years. The data collected by Argo floats during their lifetime enable continuous monitoring of circulation and climate patterns in the oceans on a global scale and are used by researchers in many scientific disciplines including meteorology, climatology, and oceanography. Because weather and climate in the atmosphere are linked to the ocean, Argo data are helping to improve understanding of and provide better preparation for *(continued on page 2)*



A profiling float is deployed by AOML's Physical Oceanography Division in support of the international Argo project.

(continued from page 1)

hurricanes, El Niño episodes, and other major events that affect human safety, food production, water management, and transportation.

Argo data are publicly available within 24 hours of collection via the Internet and the Global Telecommunication System. The data can help any nation protect the health and economic welfare of its population.

Implementation of the Argo array is accomplished with strong international coordination and collaboration, facilitated by a partnership between the Intergovernmental Oceanographic Commission and the World Meteorological Organization. In addition to the United States, other nations that either have Argo floats in the water or plan to deploy the instruments within the next year are Australia, Canada, China, Denmark, France, Germany, India, Ireland, Japan, Korea, Mauritius, New Zealand, Norway, Russia, Spain and the United Kingdom, as well as the European Commission.

Major U.S. partners in the Argo program include the Scripps Institution of Oceanography, Woods Hole Oceanographic Institution, the University of Washington, AOML, the Pacific Marine Environmental Laboratory, and the Navy's Office of Naval Research Fleet Numerical Meteorological and Oceanographic Center.

(Adapted from December 29, 2003 article on NOAA web site, Jana Goldman, media contact.)

The holidays were happier for 12 south Florida families this past year due to the generosity of AOML staff members, who contributed \$650 to AOML's Holiday Giving Program. The monies raised were used by Evan Forde and Howard Friedman, holiday-giving program coordinators, to purchase Winn Dixie supermarket gift certificates. The certificates were distributed to 11 Miami-Dade County families through the assistance of local schools and churches; a Broward County family also received a gift certificate due to the assistance of the South Florida Federal Executive Board. Since 1998, AOML's Holiday Giving Program has helped more than 50 families with children. Thanks to all who kindly donated to the 2003 holiday-giving campaign.

AOML Welcomes New Assistant Administrator

NOAA's new Assistant Administrator for the Office of Oceanic and Atmospheric Research (OAR), Dr. Richard Rosen, visited AOML on Monday, February 2, 2004. On hand to welcome him to OAR's southernmost environmental research laboratory were Acting and Deputy Directors Peter Ortner and Judy Gray.

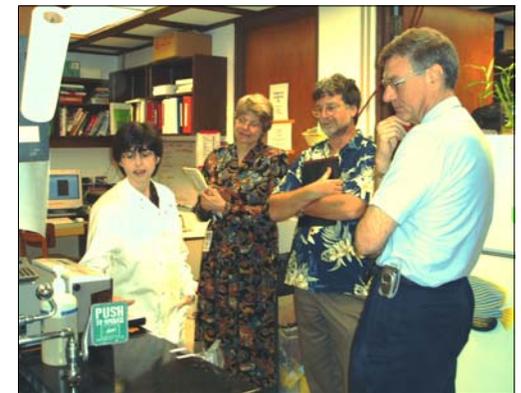
Following a series of preliminary meetings and discussions, Rosen was given a brief tour of the facility. Accompanied by Ortner and Gray, he visited the Hurricane Research Division's weather briefing area, the Ocean Chemistry Division's Microbiology Laboratory, and the Physical Oceanography Division's buoy construction and engineering work-shop areas.

Rosen also visited NOAA's Miami Regional Library located at AOML and the Global Ocean Observing System (GOOS) Center housed at AOML within the Physical Oceanography Division. Outdoor stops along the tour included a visit to the platform construction area of the Coral Reef Early Warning System (CREWS) project and inspection of the R/V *Virginia Key*, a small vessel used for research in Florida Bay. The tour highlighted several of AOML's coastal and regional efforts, advances made in hurricane research, and longer-term monitoring and operational activities including oceanic circulation and climate studies.

Upon completion of the tour, Rosen conducted an informal, all-hands staff meeting to discuss the preliminary findings of NOAA's Research Review Panel. The Research Review Panel has been tasked with assessing the overall effectiveness and organization of OAR's environmental laboratories and joint institutes. Rosen then fielded questions from staff members about the future implications of the Panel's findings and possible restructuring of OAR. AOML welcomes a return visit by Dr. Rosen for the opportunity to present its research in greater depth.



Richard Rosen, Robert Molinari, and Peter Ortner listen as David Bitterman (right) discusses the monitoring capabilities of Florida Bay shallow water drifting buoys.



Dr. Kelly Goodwin provides Judy Gray, Peter Ortner, and Richard Rosen with an overview of research taking place in the Ocean Chemistry Division's Microbiology Laboratory.



Dr. James Hendee explains how Coral Reef Early Warning System (CREWS) monitoring stations are assembled.

**February is
National African-American History Month**

Welcome Aboard

Konstantin Korotenko joins the staff of the Physical Oceanography Division as a National Research Council Senior Research Associate. He will work with Dr. Carlisle Thacker on development of new approaches for estimating salinity profiles in the upper ocean. Konstantin obtained his doctoral degree in 1998 from the P.P. Shirshov Institute of the Russian Academy of Sciences in Moscow, Russia. Additional information about Konstantin can be found on his web site at <http://www.aha.ru/~koroten>.

Stephane Mejias, a graduate student from the National Meteorological School in Toulouse, France, joins the staff of the Hurricane Research Division for an extended six-month visit. While at AOML, she will work with Michael Black and others on the analysis of global positioning system (GPS) dropsonde data.

NOAA Corps officer LCDR Scott Stolz joins the staff of the Office of the Director as AOML's new Associate Director. Prior to his arrival at AOML, he served with NOAA's Office of Response and Restoration/Hazardous Materials Response Division in Seattle, Washington. He has also served aboard NOAA research vessels and with the Northwest Fisheries Science Center. Scott holds a Bachelors degree in oceanography from Florida Institute of Technology and a Masters degree in engineering management from George Washington University.

Farewell

Alexander Lowag, a graduate student from Germany departed AOML in early February after an extended six-month visit with AOML's Hurricane Research Division. While at AOML, he worked with Michael Black in analyzing data from Hurricane Bret (1999).



All federal, joint institute, and contract employees, as well as visitors on site for more than 30 days, are required to complete NOAA's FY2004 Security Awareness Training Course by March 31st. Access the course online at:

<http://noaa.learnsecuritywith.us/>

Congratulations

Michael Black, a meteorologist with AOML's Hurricane Research Division, and James Franklin of the National Hurricane Center were the recipients of a Gold Medal at the Department of Commerce Awards Ceremony in Washington, D.C. on December 5, 2003. The pair were recognized for their research using global positioning system (GPS) dropsondes to study the wind structure in the eyewall region of tropical cyclones.



James Franklin and Michael Black

Silvia Garzoli, Director of AOML's Physical Oceanography Division, was selected as a 2004 Employee of the Year by NOAA's Office of Oceanic and Atmospheric Research (OAR). Garzoli received the award in recognition of her excellence in successfully organizing and conducting oceanographic research at both the national and international levels and for her competent leadership in serving the geophysical community at large. Her scientific and managerial capabilities have established her as an internationally renowned and respected member of the physical oceanography community.



Silvia Garzoli

Howard Friedman, Deputy Director of AOML's Hurricane Research Division, was a member of a group of facilitators who received a Bronze Medal at the Department of Commerce Awards Ceremony in College Park, Maryland on October 24, 2003. The group was recognized for their success in facilitating close to 1,000 work group meetings as part of NOAA's second Survey Feedback Action process.



Dr. Richard Rosen, OAR facilitators Nikola Garber, Matthew Wilburn, and Howard Friedman, and VADM Conrad Lautenbacher.

Mark Powell, a meteorologist with AOML's Hurricane Research Division, competed in the U.S. Olympic Trials for windsurfing on November 8-16, 2003 at the U.S. Sailing Center in Jensen Beach, Florida. During the nine-day competition, 14 races were held in wind conditions ranging from 5-25 knots. Powell finished eighth out of 10 competitors. The overall winner, Peter Wells of Newport Beach, California, will represent the United States this summer in the 2004 Olympic Games in Athens, Greece.



Mark Powell

Walter Sun, a graduate student with the Massachusetts Institute of Technology's Laboratory for Information and Decision Systems, received an Outstanding Student Paper Award from the American Geophysical Union for his 2003 Fall Meeting poster presentation entitled *Localization of oceanic fronts and feature boundaries using a variational technique*. Carlisle Thacker, an oceanographer with AOML's Physical Oceanography Division, served as one of Sun's advisors (and co-authors) on how image processing techniques could be adapted to oceanographic applications.

AOML received a 2003 Excellence in Partnering Award from the National Oceanographic Partnership Program (NOPP) for its role as a partner of the Argo Project. The Argo Project was selected as one of the most outstanding NOPP-supported programs based upon criteria that included the ocean sector diversity among its partners and their level of effort and involvement, success of the partnership in meeting its objectives, and the impact of the effort upon the ocean research community.

Travel

Howard Friedman and Shirley Murillo attended the American Meteorological Society's 84th Annual Meeting in Seattle, Washington on January 11-15, 2004.

Rik Wanninkhof was an invited guest speaker and participant at the Ocean Surface pCO₂, Data Integration, and Database Development Workshop in Tsukuba, Japan on January 14-17, 2004.

James Hendee hosted the Second Annual Coral Reef Early Warning System (CREWS) Think-Tank Workshop in Lee Stocking Island, Bahamas on January 26-30, 2004. Jules Craynock from AOML's Ocean Chemistry Division also attended.

John Kaplan collaborated with Dr. Mark DeMaria of the National Environmental Satellite, Data and Information Service on joint hurricane testbed-funded research in Fort Collins, Colorado on January 26-30, 2004.

Jeffery Kelley participated in a NOAA Divemaster training program in Key West, Florida on January 26-30, 2004.

Silvia Garzoli, Rick Lumpkin, Christopher Meinen, Tsung-Hung Peng, and Jia-Zhong Zhang attended the American Geophysical Union's 12th Ocean Sciences Meeting in Portland, Oregon on January 28-30, 2004.

Lloyd Moore attended a Hazardous/ Toxic Waste Management Workshop in Richmond, Virginia on January 29-30, 2004.

Robert Molinari participated as a member of a NASA review panel in Washington, D.C. on February 9-13, 2004.

Tsung-Hung Peng attended the 2004 Ocean Research Conference co-sponsored by the American Society of Limnology and Oceanography and The Oceanography Society (ASLO/TOS) in Honolulu, Hawaii on February 15-20, 2004.

Jeffrey Absten and Michael Shoemaker attended Coral Reef Early Warning System (CREWS) related activities in Lee Stocking Island, Bahamas on February 23-25, 2004.

James Hendee, Linda Pikula, and Erica Rule attended the 11th U.S. Coral Reef Task Force Meeting in Washington, D.C. on February 24-25, 2004.

Recent AOML Publications (December 2003-February 2004)*

GARZOLI, S.L., A. Ffield, W.E. Johns, and Q. YAO, 2004: North Brazil Current retroflection and transports. *Journal of Geophysical Research*, 109(C1):1013, doi:10.1029/2003JC001775.

GONI, G.J., and J.A. TRINANES, 2003: Ocean thermal structure monitoring could aid in the intensity forecast of tropical cyclones. *EOS, Transactions, American Geophysical Union*, 84:573-578.

HENDEE, J.C., 2004: The Coral Reef Early Warning System (CREWS): Marine environmental monitoring to support research and marine sanctuary management. In *The Effects of Combined Sea Temperature, Light, and Carbon Dioxide on Coral Bleaching, Settlement, and Growth*, J.C. Hendee (ed.). NOAA Research Special Report, Silver Spring, MD, 23-25.

KATSAROS, K.B., 2003: Book review, *Atmosphere-Ocean Interactions, Volume 1*, W. Perrie (ed.). *Oceanography*, 16(4):106-108.

Lawrence, D., M.J. Dagg, H. Liu., S.R. CUMMINGS, P.B. ORTNER, and C.R. KELBLE, 2004: Wind events and benthic-pelagic coupling in a shallow subtropical bay in Florida. *Marine Ecology Progress Series*, 266:1-13.

Lee, K., S.-D. Choi, G.-H. Park, R.H. WANNINKHOF, T.-H. PENG, R.M. Key, C.L. Sabine, R.A. Feely, J.L. Bullister, F.J. Millero, and A. Kozyr, 2003: An updated anthropogenic CO₂ inventory in the Atlantic Ocean. *Global Biogeochemical Cycles*, 17(4):1116, doi:10.1029/2003GB00267.

MANZELLO, D., 2004: A decade of SEAKEYS data: SST trends and patterns. In *The Effects of Combined Sea Temperature, Light, and Carbon Dioxide on Coral Bleaching, Settlement, and Growth*, J.C. Hendee (ed.). NOAA Research Special Report, Silver Spring, MD, 35-36.

MANZELLO, D., and D. Lirman, 2003: The photosynthetic resilience of *Porites furcata* to salinity disturbance. *Coral Reefs*, 22(4):537-540.

McFarquhar, G.M., and R.A. BLACK, 2004: Observations of particle size and phase in tropical cyclones: Implications for mesoscale modeling of microphysical processes. *Journal of the Atmospheric Sciences*, 61(4):422-439.

Olsen, A., J.A. TRINANES, and R. WANNINKHOF, 2004: Sea-air flux of CO₂ in the Caribbean Sea estimated using in situ and remote sensing data. *Remote Sensing of Environment*, 89(3):309-325.

ORTNER, P.B., S.R. CUMMINGS, S.L. Smith, P. Lane, J. Lamkin, C. Yeung, and D. Jones, 2004: Abundance and diel migrations of demersal mesozooplankton and small reef fishes and their trophodynamic contribution to the coral reef ecosystem: A pilot study. In *The Effects of Combined Sea Temperature, Light, and Carbon Dioxide on Coral Bleaching, Settlement, and Growth*, J.C. Hendee (ed.). NOAA Research Special Report, Silver Spring, MD, 27-28.

PALMER, D.R., 2003: On the interpretation of measurements of acoustic backscatter from dredged-material plumes. *Journal of Marine Environmental Engineering*, 7(2):125-152.

YVON-LEWIS, S.A., D.B. King, R. Tokarczyk, K.D. GOODWIN, E.S. Saltzman, and J.H. Butler, 2004: Methyl bromide and methyl chloride in the Southern Ocean. *Journal of Geophysical Research*, 109(C2):C02008, doi:10.1029/2003JC001809.

*Names of AOML authors appear in capital letters.

Keynotes is published bi-monthly by the Atlantic Oceanographic and Meteorological Laboratory. Contributions and/or comments are welcome and may be submitted via email (Gail.Derr@noaa.gov), fax (305) 361-4449, or mailing address: NOAA/AOML, *Keynotes*, 4301 Rickenbacker Causeway, Miami, FL 33149.

Editor – Judy Gray
Publishing Editor/Writer – Gail Derr

View *Keynotes* online: <http://www.aoml.noaa.gov/keynotes>